A.2.31 AOC 16

The OWSS (AOC 16) consists of approximately 11 miles of underground piping that connects the tank basins and process areas to the ETP. The OWSS, which was constructed prior to 1950, is used to convey process water and stormwater runoff from process areas and tank basins to the ETP that is located in the North Field. The OWSS in the North Field/Main Yard and Central Yard flows to the ETP via gravity. Process water and stormwater collected in the East Yard are pumped to the ETP.

The OWSS has been the subject of two major investigations. These include:

- Phase I Oily Water Sewer System Investigation Report RCRA Corrective Action Module #3 (Chevron, September 1997); and
- Phase II OWSS Investigation – (March 2002).

The sampling strategy during the Phase II OWSS was modified to target potential groundwater impacts. One groundwater sample was collected at each of the proposed sampling points, and soil samples were to be collected from the vadose zone if evidence of environmental impacts was observed. Groundwater samples were obtained from the first water bearing zone using NJDEP's Alternate Groundwater Sampling Technique 4.0. Samples collected for VOC or SVOC analyses were collected using a bailer after slotted PVC was driven to depth. "Porous media" and a peristaltic pump were used to collect samples to be analyzed for metals.

As summarized in Table A.2.27, a large number of samples (approximately 60 soil samples and 70 groundwater samples) were collected and analyzed as part of the two OWSS Investigations[1]. The results are discussed in detail in the two reports referenced above. In addition, soil samples were collected from monitoring wells that were installed during the Full RFI. Some of these monitoring wells were primarily installed to investigate site-wide groundwater flow and are not necessarily located near SWMUs and AOCs (including the AOC 16 OWSS sewers), but in some cases they were specifically installed to confirm findings from the OWSS investigations. The five OWSS segments in the North Field (NF2 through NF6) and seven OWSS segments in the Main Yard (MY1 through MY7) are depicted on Figures A.2.27a through A.2.27i. A summary of findings for each segment is provided below.

As discussed further in Section 6 of the RFI Report, lateral delineation of selected COCs has been completed on a site-wide basis for each Yard. The delineation of these COCs is depicted graphically on the figures provided in Section 6.

[1]Relevant data from nearby SWMUs, AOCs and PAOCs are generally not included on Table A.2.27 because of the large number of samples that are already summarized on Table A.2.27 and because the five North Field and seven Main Yard OWSS segments encompass nearly all of the North Field/Main Yard. Sections 6 and 8 of the RFI Report contain a broader overview of soils and groundwater, respectively.

A.2.31.1 NF1

NF1 is located in the northwest corner of the Refinery, in the area encompassed by SWMAs 1 and 3. No samples were collected from NF1 during either the Phase I or Phase II OWSS Investigations. Detailed descriptions of SWMA 1 and SWMA 2 can be found in Sections A.2.1 and A.2.3, respectively.

A.2.31.2 NF2

NF2 is situated in the northwest portion of the North Field and includes Tank Basins 304, 312, 313 and 329. NF2 is bounded by Investigation Area NF1 to the north and west, NF3 to the east, and Barber Street to the south. As shown on Figure A.2.27a, LNAPL area NF2 is located in the southwest part this investigation area. The following samples were collected to evaluate potential releases from the NF2 OWSS Segment:

Constituents of Concern	Phase I OWSS		Phase II OWSS		Full RFI	
	Soil	Water	Soil	Water	Soil	Water
VOCs	0	0	2	11	0	0
SVOCs	0	0	2	11	0	0
Metals	0	0	2	11	0	0
TPH	0	0	2	0	0	0
GC Fingerprint	0	0	0	1	0	0

Soils

Surface Soils (0 to 2 feet bgs)

Catalyst beads, hydrocarbon odor and other evidence of petroleum impacts were noted at four boring locations (H0310, H0312/S0492, H0457 and H0458).

Subsurface Soils (>2 feet bgs)

Evidence of petroleum impacts (e.g., elevated PID readings, staining, odors, etc.) was noted in subsurface soils at 12 of the 16 boring locations. Eight of these borings were within the footprint of LNAPL Area NF2, although measurable LNAPL was detected in only three of these borings. Two borings (H0432 and H0457) were located within 60 feet of LNAPL Area NF2. One boring (H0316) was located next to AOC 9B, and the tenth boring (H0310) was located within Tank Basin 318. Catalyst beads were noted at H0310, and fly ash was observed in ten of the borings. The fill layer is six to 14 feet thick in this portion of the Refinery.

Two soil samples (S0492 and S0493) were collected within LNAPL Area NF2. Benzene (1.4 mg/kg) and benzo(a)pyrene (1.2 mg/kg) were detected above the soil delineation criteria in S0492. There were no exceedances of the soil delineation criteria in the soil sample from S0493.

Native Soils

A clay layer underlies the fill material at depths ranging from six to 14 feet bgs. Meadow mat was noted in two borings (H0310 and H0458) at approximately 10 to 12 feet bgs. Staining and odor were noted in the clay layer at only one location (H0457). In general, the native layer does not appear to be impacted.

Groundwater

Benzene and other organic COCs (ethylbenzene, xylenes and/or naphthalene) were detected above the applicable groundwater delineation criteria in six of the hydropunch samples. Chloroform (18 µg/L) was detected in one sample (H0424). Lead and other metals were also detected in hydropunch samples; however, as discussed in Section 8 of the RFI Report, hydropunch metals data are not considered to be reliable indicators of ambient groundwater conditions. A more detailed description of groundwater conditions can be found in the site-wide groundwater discussion (Section 8 of the RFI Report).

Summary

LNAPL Area NF2 is located within the southwest part of this investigation area, and has been fully delineated (see Section 7 of the RFI report). Any additional activities will be evaluated further, if needed, in the CMS. Potential groundwater impacts will also be included in the CMS as part of the site-wide groundwater evaluation.

A.2.31.3 NF3

Investigation Area NF3 includes Tank Basins 302, 303, 318, 328 and 330. As shown on Figure A.2.27b, LNAPL area NF3 is located in the northeast portion of this investigation area. The following samples were collected to evaluate potential releases from the NF3 OWSS segment:

Constituents of Concern	Phase I OWSS		Phase II OWSS		Full RFI	
	Soil	Water	Soil	Water	Soil	Water
VOCs	0	0	0	10	0	0
SVOCs	0	0	0	10	0	0
Metals	0	0	0	10	0	0
GC Fingerprint	0	0	0	1	0	0

Soils

Surface Soils (0 to 2 feet bgs)

No staining, odors, or elevated PID readings were noted in the surface soils at any of the 11 soil borings installed in NF3 during the Phase II OWSS.

Subsurface Soils (>2 feet bgs)

Elevated PID readings, odors, staining and/or other evidence of petroleum impacts were noted in seven of the 11 borings at NF3. The fill layer ranges from five to 14 feet thick in this part of the Refinery. Three of the borings (H0318, H0320 and H0440) were located within LNAPL Area NF3. One of the borings (H0319) was located in close proximity to SWMU 20, and one boring was located near the SWMU 43 LNAPL Area. Borings H0433 and H0321 also showed evidence of petroleum impacts, but are not located near SWMUs or identified LNAPL areas.

Native Material

A clay layer underlies the fill material at depths ranging from five to 14 feet bgs. Some black staining was noted in the clay at two locations (H0318 and H0319).

Groundwater

Benzene was detected above the groundwater delineation criteria in seven of the 10 hydropunch samples at concentrations ranging from 2 to 1,400 µg/L (near SWMU 20). Metals and SVOC COCs were detected in many of the hydropunch samples, but these data are not considered to be reliable indicators of ambient groundwater conditions. A more detailed description of groundwater conditions can be found in the site-wide groundwater discussion (Section 8 of the RFI Report).

Summary

LNAPL Area NF3 is located within the southwest part of this investigation area. This LNAPL area has been fully delineated (see Section 7 of the RFI report). Any additional activities will be evaluated further, if needed, in the CMS. Potential groundwater impacts will also be included in the CMS as part of the site-wide groundwater evaluation.

A.2.31.4 NF4

Investigation Area NF4 encompasses a large part of the North Field that is bordered by Spa Spring and Woodbridge Creeks to the north and east, NF3 and NF5 to the south, and NF1 to the west. LNAPL Area NF4 is located in the northern portion of this area, between the Surge Pond (SWMU 2) and the ETP (SWMU 3). The following samples were collected to evaluate potential releases from the NF4 OWSS segment:

Constituents of Concern	Phase I OWSS		Phase II OWSS		Full RFI	
	Soil	Water	Soil	Water	Soil	Water
VOCs	0	0	0	13	0	0
SVOCs	0	0	0	13	0	0
Metals	0	0	0	13	0	0
GC Fingerprint	0	0	0	1	0	0

Soils

Surface Soils (0 to 2 feet bgs)

Odor was noted in only one (H0416) of the 14 borings in the surface soils.

Subsurface Fill Material (>2 feet bgs)

Elevated PID readings, staining, odor and/or evidence of petroleum impacts were noted in eight of the 14 borings. Flyash and/or catalyst beads were noted in several of the borings. The fill layer is six to 13 feet thick in this part of the Refinery. Measurable LNAPL was detected in one of the borings (H0330) located within LNAPL Area NF4. Evidence of petroleum-related impacts was frequently noted in this portion of the Refinery.

Native Materials

A clay layer underlies the fill material at a depth of six to 13 feet bgs. Black staining and odor were noted in the clay layer at one location (H0441).

Groundwater

Benzene was detected above the groundwater delineation criterion in seven of the 13 hydropunch samples at concentrations ranging from 2 µg/L to 420 µg/L. Metals and SVOC COCs were detected in many of the hydropunch samples, but these data are not considered to be reliable indicators of ambient groundwater conditions. A more detailed description of groundwater conditions can be found in the site-wide groundwater discussion (Section 8 of the RFI Report).

Summary

LNAPL Area NF4 is located within the southwest part of this investigation area. As discussed in Section 7 of the RFI Report, this LNAPL area has been fully delineated. Any additional activities will be evaluated further, if needed, in the CMS. Potential groundwater impacts will also be included in the CMS as part of the site-wide groundwater evaluation.

A.2.31.5 NF5

Investigation Area NF5 includes Tank Basins 300, 301, 305, 306, 326 and 327. LNAPL area NF5 is located in the eastern part of NF5, between Tanks 305 and 306. The following samples were collected to evaluate potential releases from the NF5 OWSS segment:

Constituents of Concern	Phase I OWSS		Phase II OWSS		Full RFI	
	Soil	Water	Soil	Water	Soil	Water
VOCs	0	0	0	5	0	0
SVOCs	0	0	0	5	0	0
Metals	0	0	0	5	0	0
GC Fingerprint	0	0	0	1	0	0

Soils

Surface Soils (0 to 2 feet bgs)

Black staining and odor were noted at one boring location (H0325).

Subsurface Fill Material (>2 feet bgs)

Elevated PID readings, staining, odor and/or other evidence of petroleum impacts were noted in all of the NF5 borings. Flyash was noted in four of the six borings. The fill layer ranges from four to seven feet thick in this part of the Refinery. Measurable LNAPL was detected in one of the borings (H0329) that is located within LNAPL Area NF5.

Native Materials

A clay layer underlies the fill material at a depth of four to seven feet bgs. Staining was noted at the top of the clay layer at two locations (H0325 and H0329).

Groundwater

Benzene was detected above the groundwater delineation criterion in all five hydropunch samples at concentrations ranging from 190 to 1,200 µg/L. Metals and SVOC COCs were also detected above the applicable groundwater criteria in the hydropunch samples, but these data are not considered to be reliable indicators of ambient groundwater conditions. A more detailed description of groundwater conditions can be found in the site-wide groundwater discussion (Section 8 of the RFI Report).

Summary

LNAPL Area NF5 is located within the southwest part of this investigation area. This area has been characterized and delineated as discussed in Section 7 of the RFI report. Any additional activities will be evaluated further, if needed, in the CMS. Potential groundwater impacts will also be included in the CMS as part of the site-wide groundwater evaluation.

A.2.31.6 NF6

Investigation Area NF6 is located in the vicinity of the NaSH Loading Rack. It is bordered by Investigation Area NF4 to the north and east, Barber Street to the south, and NF5 to the west. As shown on Figure A.2.27e, LNAPL area NF6 is located in the northern portion of NF6. The following samples were collected to evaluate potential releases from the NF6 OWSS segment:

Constituents of Concern	Phase I OWSS		Phase II OWSS		Full RFI	
	Soil	Water	Soil	Water	Soil	Water
VOCs	0	0	1	10	0	0
SVOCs	0	0	1	10	0	0
Metals	0	0	1	10	0	0
GC Fingerprint	0	0	0	1	0	0
TPH	0	0	1	0	0	0

Soils

Surface Soils (0 to 2 feet bgs)

Staining and odor were noted at one boring location (H0465), and catalyst beads were noted at H0442 at one to seven feet bgs.

Subsurface Fill Material (>2 feet bgs)

Elevated PID readings, staining, odor and/or other evidence of petroleum impacts were noted in eight of the 11 NF5 borings. The fill layer ranges from seven to 10 feet thick. All of the borings are located within or close to LNAPL Area NF6-AOC 8. Flyash was noted in three of the borings and catalyst beads were noted in one boring (H0465). Measurable LNAPL was detected in one of the borings (H0446) that is located within LNAPL Area NF6. No COCs were detected above the applicable soil delineation criteria in the soil sample collected from S0494 (2.5 to 3 feet bgs).

Native Materials

No staining or other evidence of contamination were noted in the clay layer which underlies the fill material at a depth of seven to 10 feet bgs. Peat was noted at eight to 10 feet bgs at one location (H0465).

Groundwater

Benzene was detected above the groundwater delineation criterion in five of the 10 hydropunch samples at concentrations ranging from 3 to 2,200 µg/L. Metals and SVOC COCs were also detected above the applicable groundwater criteria in the hydropunch samples, but these data are not considered to be reliable indicators of ambient

groundwater conditions. A more detailed description of groundwater conditions can be found in the site-wide groundwater discussion (Section 8 of the RFI Report).

Summary

LNAPL Area NF6 is located within the southwest part of this investigation area. As discussed in Section 8 of the RFI Report, this LNAPL has been characterized and delineated. Any additional activities will be evaluated further, if needed, in the CMS. Potential groundwater impacts will also be included in the CMS, if needed, as part of the site-wide groundwater evaluation.

A.2.31.7 MY1

Investigation Area MY1 is situated in the northwestern portion of the Main Yard. The area is bounded by Investigation Areas NF2 and NF3 to the north and east, MY4 and the central portion of the Main Yard to the south, and the Pennsylvania Railroad to the west. The lines, which were installed over 40 years ago, serve as tank basin drainage for 13 tanks (Tanks 308 through 311, 314 through 317, and 321 through 325). The following samples were collected to evaluate potential releases from the MY1 OWSS segment:

Constituents of Concern	Phase I OWSS		Phase II OWSS		Full RFI	
	Soil	Water	Soil	Water	Soil	Water
VOCs	2	16	1	5	3	1
SVOCs	2	16	1	5	3	1
Metals	2	16	1	5	3	1
TPH	2	16	1	0	0	0

Soils

Surface Soils (0 to 2 feet bgs)

Staining and odor were noted in surface soils at several boring locations (HP0045, HP0050, H00053, HP0054, HP0077, HP0078, SB0255, SB0277 and S0491). Benzene (1.4 mg/kg), benzo(a)pyrene (1.5 mg/kg), and several other PAHs were detected above the soil delineation criteria in the surface soil sample from S0844/MW-140.

Subsurface Fill Material (>2 feet bgs)

Elevated PID readings, staining, odor and/or evidence of petroleum impacts were noted in 20 of the 25 borings installed during the Phase I and II OWSS Investigations. The fill material ranges from seven to 14 feet thick in this portion of the Refinery. Flyash with globules of black liquid was noted in three of the borings (H0434, H0435 and H0436) located in the southeast corner of MY1. Measurable LNAPL was not detected in any of the borings. COCs were not detected above the applicable soil delineation in either of the two soil samples collected during the Phase I OWSS Investigation. Benzo(a)pyrene (1 mg/kg) was the only COC detected above the delineation criteria in the soil sample

collected during the Phase II OWSS. Benzo(a)pyrene (1.7 mg/kg) and several other PAHs were detected above the soil delineation criteria in the subsurface fill sample collected at S0844/MW140 during the full RFI.

Native Materials

No staining or other evidence of contamination were noted in the clay layer which underlies the fill material at a depth of seven to 14 feet bgs.

Groundwater

Benzene was detected above the groundwater delineation criterion in 15 of the 31 hydropunch samples at concentrations ranging from 2 to 210 µg/L. Metals and SVOC COCs were also detected above the applicable groundwater criteria in the hydropunch samples, but these data are not considered to be reliable indicators of ambient groundwater conditions. A more detailed description of groundwater conditions can be found in the site-wide groundwater discussion (Section 8 of the RFI Report).

Summary

Similar to site-wide observations, several COCs, including, but not limited to, benzene and benzo(a)pyrene were detected in soil at concentrations above their respective soil delineation criteria in the MY1 Investigation Area. Institutional controls/engineered barriers for site-related impacted soils within the fill unit will be considered in the CMS. Potential groundwater impacts will also be included in the CMS as part of the site-wide groundwater evaluation.

A.2.31.8 MY2

Investigation Area MY2 is located in the central section of the Main Yard and includes the OWSS segment lines that serve as process drainage for the various units currently located within the Main Yard including the NaSH Plant, former Isomax Plant (now containing two package boilers) and Crude Unit No. 5. The following samples were collected to evaluate potential releases from the MY2 OWSS segment:

Constituents of Concern	Phase I OWSS		Phase II OWSS		Full RFI	
	Soil	Water	Soil	Water	Soil	Water
VOCs	0	9	0	0	0	0
SVOCs	0	9	0	0	0	0
Metals	0	9	0	0	0	0

Soils

Surface Soils (0 to 2 fet bgs)

Staining and odor were noted in surface soils at one location (HP0034) in MY2.

Subsurface Fill Material (>2 feet bgs)

Elevated PID readings, staining, odor and/or other evidence of petroleum impacts were noted in all of the nine borings installed to investigate the MY2 OWSS Investigation Area. The fill material ranges from at least six feet thick to 13 feet thick in this portion of the Refinery. Measurable LNAPL was not detected in any of the borings. No subsurface fill samples were collected from this area.

Native Materials

Native soil (e.g., peat) was encountered at one location (MW-24) at a depth of 13 feet bgs.

Groundwater

Benzene was detected above the groundwater delineation criterion in six of the eight hydropunch samples at concentrations ranging from 3 µg/L to 54 µg/L. Benzene was not detected in the groundwater sample from MW-24. Metals and SVOC COCs were also detected above the applicable groundwater delineation criteria in the hydropunch samples, but these data are not considered to be reliable indicators of ambient groundwater conditions. A more detailed description of groundwater conditions can be found in the site-wide groundwater discussion (Section 8 of the RFI Report).

Summary

Several COCs, including, but not limited to benzene were detected in groundwater at concentrations above their respective criteria in the MY2 Investigation Area. Potential groundwater impacts will be included, if needed, in the CMS as part of the site-wide groundwater evaluation.

A.2.31.9 MY3

Investigation Area MY3 is situated in the southern section of the Main Yard and includes the area that formerly contained Tanks 1 through 4 and Tank 20. The following samples were collected to evaluate potential releases from the MY3 OWSS segment:

Constituents of Concern	Phase I OWSS		Phase II OWSS		Full RFI	
	Soil	Water	Soil	Water	Soil	Water
VOCs	0	0	2	14	0	0
SVOCs	0	0	2	14	0	0
Metals	0	0	2	14	0	0
TPH	0	0	2	0	0	0

Soils

Surface Soils (0 to 2 feet bgs)

Staining and odor were noted in surface soils at one location (H0297) in MY3.

Subsurface Fill Material (>2 feet bgs)

Elevated PID readings, staining, odor and/or other evidence of petroleum impacts were noted in eight of the 16 borings installed to investigate the MY3 OWSS Investigation Area. The fill material ranges from three to 10 feet thick in this portion of the Refinery. The two borings with evidence of petroleum impacts (H0296 and H0303) are both located near known LNAPL areas (AOC 8 and AOC 19, respectively). Measurable LNAPL was not detected in any of the borings. Mercury (29 mg/kg) was the only COC detected above the soil delineation criteria in soil sample S0508B2 (2.5 to 3 feet bgs), and vanadium (571 mg/kg) was the only COC detected above soil delineation criteria in the other soil sample (S0507B4, 3.5 to 4 feet bgs).

Native Materials

A sandy clay layer underlies the fill layer throughout most of this area. Meadow mat/peat was noted in several borings at depths ranging from 9.5 to 11 feet bgs. A hydrocarbon odor was noted near the top of the native clay and sand layer (9 to 11 feet bgs) at H0303.

Groundwater

Benzene was detected above the groundwater delineation criterion in three of the 14 hydropunch samples at concentrations ranging from 2 to 860 µg/L. The highest concentration was found in the groundwater sample from H0303, which is located near LNAPL Area AOC 19. However, benzene was detected at only 2 µg/L in the October 2002 groundwater sample from monitoring well MW-133. This well was installed next to H0303 during the full RFI (see AOC 19). Metals and SVOC COCs were also detected above the applicable groundwater criteria in the hydropunch samples, but these data are not considered to be reliable indicators of ambient groundwater conditions. A more detailed description of groundwater conditions can be found in the site-wide groundwater discussion (Section 8 of the RFI Report).

Summary

Vanadium and mercury were the only COCs detected above the applicable soil delineation criteria in soil samples collected from MY3. This is the only occurrence of mercury exceeding applicable criteria. Likewise, vanadium is rarely present at concentrations greater than the applicable criteria. Nonetheless, institutional controls/engineered barriers for site-related impacted soils from the fill unit in MY 3 will be considered in the CMS.

LNAPL Areas AOC 19 and AOC 8 are located within this investigation area. As discussed in Section 7 of the RFI Report, these LNAPL areas have been characterized and delineated. Any additional activities will be evaluated further, if needed, in the CMS. Potential groundwater impacts will be included in the CMS as part of the site-wide groundwater evaluation.

A.2.31.10 MY4

Investigation Area MY4 is located in the western section of the Main Yard to the south of Investigation Area MY1. The following samples were collected to evaluate potential releases from the MY4 OWSS segment:

Constituents of Concern	Phase I OWSS		Phase II OWSS		Full RFI	
	Soil	Water	Soil	Water	Soil	Water
VOCs	2	3	0	2	0	0
SVOCs	2	3	0	2	0	0
Metals	2	3	0	2	0	0

Soils

Surface Soils (0 to 2 feet bgs)

No staining and/or odor were noted in surface soils at MY4.

Subsurface Fill Material (>2 feet bgs)

No staining, odors, or other evidence of contamination were noted in any of the MY4 borings. The thickness of the fill layer ranges from approximately eight to 10 feet thick in this part of the Refinery. COCs were not detected above the soil delineation criteria in either of the two soil samples collected from MY4.

Native Materials

The underlying native clay layer was encountered at eight to 10 feet bgs in two of the borings. There was no evidence of contamination in the clay layer at either of these locations.

Groundwater

Benzene and other organic COCs were not detected above the groundwater delineation criteria in any of the five hydropunch samples collected from MY4. Metals were detected above the applicable groundwater delineation criteria in the hydropunch samples, but these data are not considered to be reliable indicators of ambient groundwater conditions. A more detailed description of groundwater conditions can be found in the site-wide groundwater discussion (Section 8 of the RFI Report).

Summary

There is no evidence of petroleum impacts related to the OWSS in Investigation Area MY4. Therefore, Chevron recommends no further action for this area.

A.2.31.11 MY5

Investigation Area MY5 is located in the western section of the Main Yard to the south of Investigation Area MY1. The following samples were collected to evaluate potential releases from the MY5 OWSS segment:

Constituents of Concern	Phase I OWSS		Phase II OWSS		Full RFI	
	Soil	Water	Soil	Water	Soil	Water
VOCs	1	3	0	1	0	0
SVOCs	1	3	0	1	0	0
Metals	1	3	0	1	0	0

Soils

Surface Soils (0 to 2 feet bgs)

No staining and/or odors were noted in surface soils at MY5.

Subsurface Fill Material (>2 feet bgs)

Petroleum odor and staining were noted in two borings (HP0065 and HP0070) in MY5. COCs were not detected above soil delineation criteria in the soil sample (SB252SC) collected from MY5.

Native Materials

The underlying native clay layer was encountered at five feet bgs at H0306. There was no evidence of contamination in the clay layer at this location.

Groundwater

Benzene (5 µg/L and 2 µg/L) was detected above the groundwater delineation criterion in two of the four hydropunch samples (HP0069 and HP0070, respectively) collected from MY5. Metals were detected above the applicable groundwater delineation criteria in the three hydropunch samples collected during the Phase I OWSS Investigation, but these data are not considered to be reliable indicators of ambient groundwater conditions. A more detailed description of groundwater conditions can be found in the site-wide groundwater discussion (Section 8 of the RFI Report).

Summary

There is no evidence of petroleum impacts related to soils in OWSS Investigation Area MY5. Therefore, Chevron recommends no further action for this area. Potential groundwater impacts will be included in the CMS as part of the site-wide groundwater evaluation.

A.2.31.12 MY6

Investigation Area MY6 is located in the western section of the Main Yard to the south of Investigation Area MY1. The following samples were collected to evaluate potential releases from the MY6 OWSS segment:

Constituents of Concern	Phase I OWSS		Phase II OWSS		Full RFI	
	Soil	Water	Soil	Water	Soil	Water
VOCs	0	0	0	1	0	0
SVOCs	0	0	0	1	0	0
Metals	0	0	0	1	0	0

Soils

Surface Soils (0 to 2 feet bgs)

No staining and/or odor were noted in surface soils at MY6.

Subsurface Fill Material (>2 feet bgs)

Flyash, odor, and/or other evidence of petroleum impacts were noted in the MY6 boring (H0307).

Native Materials

The underlying native clay layer was encountered at six feet bgs at H0307. There was no evidence of contamination in the clay layer at this location.

Groundwater

Metals (arsenic and lead) were the only COCs detected above the applicable groundwater delineation criteria in the hydropunch sample (H0307) collected during the Phase II OWSS Investigation, but these data are not considered to be reliable indicators of ambient groundwater conditions. A more detailed description of groundwater conditions can be found in the site-wide groundwater discussion (Section 8 of the RFI Report).

Summary

Potential groundwater impacts will be included in the CMS as part of the site-wide groundwater evaluation.

A.2.31.13 MY7

Investigation Area MY7 is located in the western section of the Main Yard to the south of Investigation Area MY1. The following samples were collected to evaluate potential releases from the MY7 OWSS segment:

Constituents of Concern	Phase I OWSS		Phase II OWSS		Full RFI	
	Soil	Water	Soil	Water	Soil	Water
VOCs	0	0	1	1	0	0
SVOCs	0	0	1	1	0	0
Metals	0	0	1	1	0	0

Soils

Surface Soils (0 to 2 feet bgs)

No staining and/or odor were noted in surface soils at MY7. No COCs were detected above the applicable soil delineation criteria in the surface soil sample (S0490A2) collected from MY7.

Subsurface Fill Material (>2 feet bgs)

Staining and odors were noted at the H0308/S0490 boring location.

Native Materials

The underlying native clay layer was encountered at 10 feet bgs at H0308. No evidence of contamination in the clay layer was evident at this location.

Groundwater

Lead (16.3 µg/L) was the only COC detected above the applicable groundwater delineation criteria in the hydropunch sample (H0308) collected during the Phase II OWSS Investigation; however, data from hydropunch samples are not considered to be reliable indicators of ambient groundwater conditions. A more detailed description of groundwater conditions can be found in the site-wide groundwater discussion (Section 8 of the RFI Report).

Summary

There is no evidence of petroleum impacts to soil related to the OWSS in Investigation Area MY7. Therefore, Chevron recommends no further action for this area. Potential groundwater impacts will be included in the CMS as part of the site-wide groundwater evaluation.